California Energy Action Plan

Electricity Outlook for Summer 2006 and Beyond

Energy Action Plan II Meeting

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December 12, 2005

California Energy Action Plan

Changes Since Outlook presented to EAP on September 12th, 2005

- Demand forecast from 2005 IEPR adjusted
- Demand Response resources updated
- Outage data updated
- Net interchange in NP26 and SP26 adjusted
- Mohave Capacity adjusted
- MID/TID utilities moved from ISO control area
- Zonal Transmission limitation reduced

California Energy Action Plan

2006 Statewide Outlook (MW)

	Resource Adequacy Planning Conventions	June	July	August	September
1	Existing Generation[1]	56,364	57,377	57,377	57,377
2	Retirements (Known)	-1,539	0	0	0
3	High Probability CA Additions	2,552	0	0	0
4	Net Interchange [2]	13,118	13,118	13,118	13,118
5	Total Net Generation (MW)	70,495	70,495	70,495	70,495
6	1-in-2 Summer Temperature Demand (Average)[3]	55,119	57,626	58,228	57,318
7	Demand Response (DR)	691	691	691	691
8	Interruptible/Curtailable Programs	1,349	1,349	1,349	1,349
9	Planning Reserve[4]	31.6%	25.9%	24.6%	26.5%
	Expected Operating Conditions				
10	Outages (Average forced + planned)	-2,570	-2,570	-2,570	-2,570
11	Zonal Transmission Limitation[5]	-150	-150	-150	-150
12	Expected Operating Generation with Outages/Limitations[6]	67,775	67,775	67,775	67,775
13	Expected Operating Reserve Margin (1-in-2)[7]	29.4%	22.3%	20.7%	23.1%
	Adverse Conditions				
14	High Zonal Transmission Limitation	-250	-250	-250	-250
15	High Forced Outages (1 STD above average)	-1,160	-1,160	-1,160	-1,160
16	Adverse Temperature Impact (1-in-10)	-3,331	-3,502	-3,627	-3,524
17	Adverse Scenario Reserve Margin[7]	17.1%	10.7%	9.1%	11.3%
18	Adverse Scenario Reserve Margin w/DR and Interruptibles[8]	21.5%	14.8%	13.2%	15.5%
19	Resources needed to meet 7.0% Reserve (W/DR & Interruptibles)	0	0	0	0
20	Surplus Resources Above 7.0% Reserve (W/DR & Interruptibles)	6,712	3,846	3,068	4,152
21	Existing Generation Without Capacity Contracts[9]	-3,722	-3,722	-3,722	-3,722

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2006 CA ISO Control Area (MW)

	Resource Adequacy Planning Conventions	June	July	August	September
1	Existing Generation[1]	45,894	46,102	46,102	46,102
2	Retirements (Known)	-1,539	0	0	0
3	High Probability CA Additions	1,747	0	0	0
4	Net Interchange [2]	10,650	10,650	10,650	10,650
5	Total Net Generation (MW)	56,752	56,752	56,752	56,752
6	1-in-2 Summer Temperature Demand (Average)[3]	44,245	46,147	46,287	45,865
7	Demand Response (DR)	691	691	691	691
8	Interruptible/Curtailable Programs	1,149	1,149	1,149	1,149
9	Planning Reserve[4]	32.4%	27.0%	26.6%	27.7%
	Expected Operating Conditions				
10	Outages (Average forced + planned)	-2,170	-2,170	-2,170	-2,170
11	Zonal Transmission Limitation[5]	-150	-150	-150	-150
12	Expected Operating Generation with Outages/Limitations[6]	54,432	54,432	54,432	54,432
13	Expected Operating Reserve Margin (1-in-2)[7]	29.4%	22.7%	22.2%	23.7%
	Adverse Conditions				
14	High Zonal Transmission Limitation	-250	-250	-250	-250
15	High Forced Outages (1 STD above average)	-1,060	-1060	-1060	-1060
16	Adverse Temperature Impact (1-in-10)	-2,560	-2,689	-2,712	-2,713
17	Adverse Scenario Reserve Margin[7]	17.0%	10.9%	10.5%	11.7%
18	Adverse Scenario Reserve Margin w/DR and Interruptibles[8]	22.0%	15.6%	15.2%	16.4%
19	Resources needed to meet 7.0% Reserve (W/DR & Interruptibles)	0	0	0	0
20	Surplus Resources Above 7.0% Reserve (W/DR & Interruptibles)	5,556	3,383	3,209	3,659
21	Existing Generation Without Capacity Contracts[9]	-3,722	-3,722	-3,722	-3,722

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2006 CA ISO Northern Region (NP26)

	Resource Adequacy Planning Conventions	June	July	August	September
1	Existing Generation	24,573	24,394	24,394	24,394
2	Retirements (Known)	-219	0	0	0
3	High Probability CA Additions	40	0	0	0
4	Net Interchange [1]	550	550	550	550
5	Total Net Generation (MW)	24,944	24,944	24,944	24,944
6	1-in-2 Summer Temperature Demand (Average)[2]	19,964	20,395	20,121	19,384
7	Demand Response (DR)	245	245	245	245
8	Interruptible/Curtailable Programs	260	260	260	260
9	Planning Reserve[3]	27.5%	24.8%	26.5%	31.3%
	Expected Operating Conditions				
10	Outages (Average forced + planned)	-1,100	-1,100	-1,100	-1,100
11	Zonal Transmission Limitation[4]	0	0	0	0
12	Expected Operating Generation with Outages/Limitations[5]	23,844	23,844	23,844	23,844
13	Expected Operating Reserve Margin (1-in-2)[6]	20.0%	17.4%	19.0%	23.7%
	Adverse Conditions				
14	High Zonal Transmission Limitation	0	0	0	0
15	High Forced Outages (1 STD above average)	-500	-500	-500	-500
16	Adverse Temperature Impact (1-in-10)	-654	-668	-660	-635
17	Adverse Scenario Reserve Margin[6]	13.6%	11.1%	12.7%	17.1%
18	Adverse Scenario Reserve Margin w/DR and Interruptibles[7]	16.1%	13.6%	15.2%	19.7%
19	Resources needed to meet 7.0% Reserve (W/DR & Interruptibles)	0	0	0	0
20	Surplus Resources Above 7.0% Reserve (W/DR & Interruptibles)	1,826	1,350	1,652	2,467
21	Existing Generation Without Capacity Contracts[8]	-682	-682	-682	-682

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2006 CA ISO Southern Region (SP26)

	Resource Adequacy Planning Conventions	June	July	August	September
1	Existing Generation[1]	21,321	21,708	21,708	21,708
2	Retirements (Known)	-1,320	0	0	0
3	High Probability CA Additions	1,707	0	0	0
4	Net Interchange [2]	10,100	10,100	10,100	10,100
5	Total Net Generation (MW)	31,808	31,808	31,808	31,808
6	1-in-2 Summer Temperature Demand (Average)[3]	24,806	26,300	26,717	27,027
7	Demand Response (DR)	395	395	395	395
8	Interruptible/Curtailable Programs	950	950	950	950
9	Planning Reserve[4]	33.6%	26.1%	24.1%	22.7%
	Expected Operating Conditions				
10	Outages (Average forced + planned)	-1,070	-1,070	-1,070	-1,070
11	Zonal Transmission Limitation[5]	-150	-150	-150	-150
12	Expected Operating Generation with Outages/Limitations[6]	30,588	30,588	30,588	30,588
13	Expected Operating Reserve Margin (1-in-2)[7]	30.9%	21.2%	18.8%	17.0%
	Adverse Conditions				
14	High Zonal Transmission Limitation	-250	-250	-250	-250
15	High Forced Outages	-560	-560	-560	-560
16	Adverse Temperature Impact (1-in-10)	-1,937	-2,054	-2,086	-2,110
17	Adverse Scenario Reserve Margin[7]	14.7%	6.4%	4.3%	2.8%
18	Adverse Scenario Reserve Margin w/DR and Interruptibles[8]	21.2%	12.4%	10.2%	8.6%
19	Resources needed to meet 7.0% Reserve (W/DR & Interruptibles)	0	0	0	0
20	Surplus Resources Above 7.0% Reserve (W/DR & Interruptibles)	2,935	1,211	731	373
21	Existing Generation Without Capacity Contracts[9]	-3,040	-3,040	-3,040	-3,040

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Existing Generation w/o Known Contracts

Existing Generation without Capacity Contracts			
SP26		**NP26**	
Name	**MW**	**Name**	**MW**
Coolwater 1/2	-146	Pittsburg 7	-680
Mandalay 1/2	-433		**-680**
Ormond Beach 1/2	-1491		
Encina 4	-300		
El Segundo 3/4	-670		
	-3040		

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Additions and Retirements

CA ISO Control Area

SP26

Additions

Name	MW	Expected
Malburg	129	Jan-06
Riverside ERC	86	Feb-06
Mountainview	1012	Feb-06
Palomar Escondido	480	Jun-06
	1707	

Retirements (Known)

Mohave	-1320	
	-1320	

NP26

Additions

Name	MW	Expected
San Francisco Peaker	40	Jun-06
	40	

Retirements (Known)

Hunters Point 1/4	-219	
	-219	

Non-CA ISO Control Areas

LADWP & IID Control Areas

Additions

Name	MW	Expected

SMUD & TID Control Area

Additions

Name	MW	Expected
Ripon	86	Jan-06
Walnut Energy Center	240	Apr-06
Cosumnes	480	Apr-06
	806	

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Preliminary comments from 12/8/05 Staff Workshop

- **PG&E**
  - **Concurs with the CEC outlook that the CA ISO Northern California reserves are adequate under normal and adverse scenarios.**
  - **The assumptions and methodology used to calculate the loads and resource availability and planning reserve margin should comport with the CPUC adopted resource adequacy rules.**
    - **Recommends using expected "1 in 2" baseline demand forecast for planning reserve assessment, not high case.**
    - **Wind capacity should reflect average production between noon to 6 pm which is approximately 20% of installed capacity. The 3% used by the CEC may be appropriate for assessing operating reserves.**
    - **Demand response and interruptible programs should be counted as resources but also should reduce the planning reserve requirement**
- **SCE**
  - **Noted that some of the plants listed as without contracts may be used for existing LD contracts or other contractual purposes.**
  - **Asked that the CEC consider developing a 5 year outlook with multiple addition/retirement scenarios, and SCE offered to assist the CEC staff in developing such an assessment.**

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Preliminary comments from 12/8/05 Staff Workshop (con't)

- **CA ISO**
  - **Developing preliminary forecast for presentation to the CA ISO board on December 15th.**
  - **Concur with our overall conclusions that there will be adequate resources for the ISO control Area, NP 26, and SP 26 under expected conditions.**
  - **Concern that SP 26 may have inadequate supply under adverse conditions.**
  - **Concern over operational complexity of using DR and Interruptible resources for adverse conditions.**
  - **Wants to ensure that the CPUC and all LSE's have a clear understanding of the implications from using DR and Interruptibles in operating the system.**

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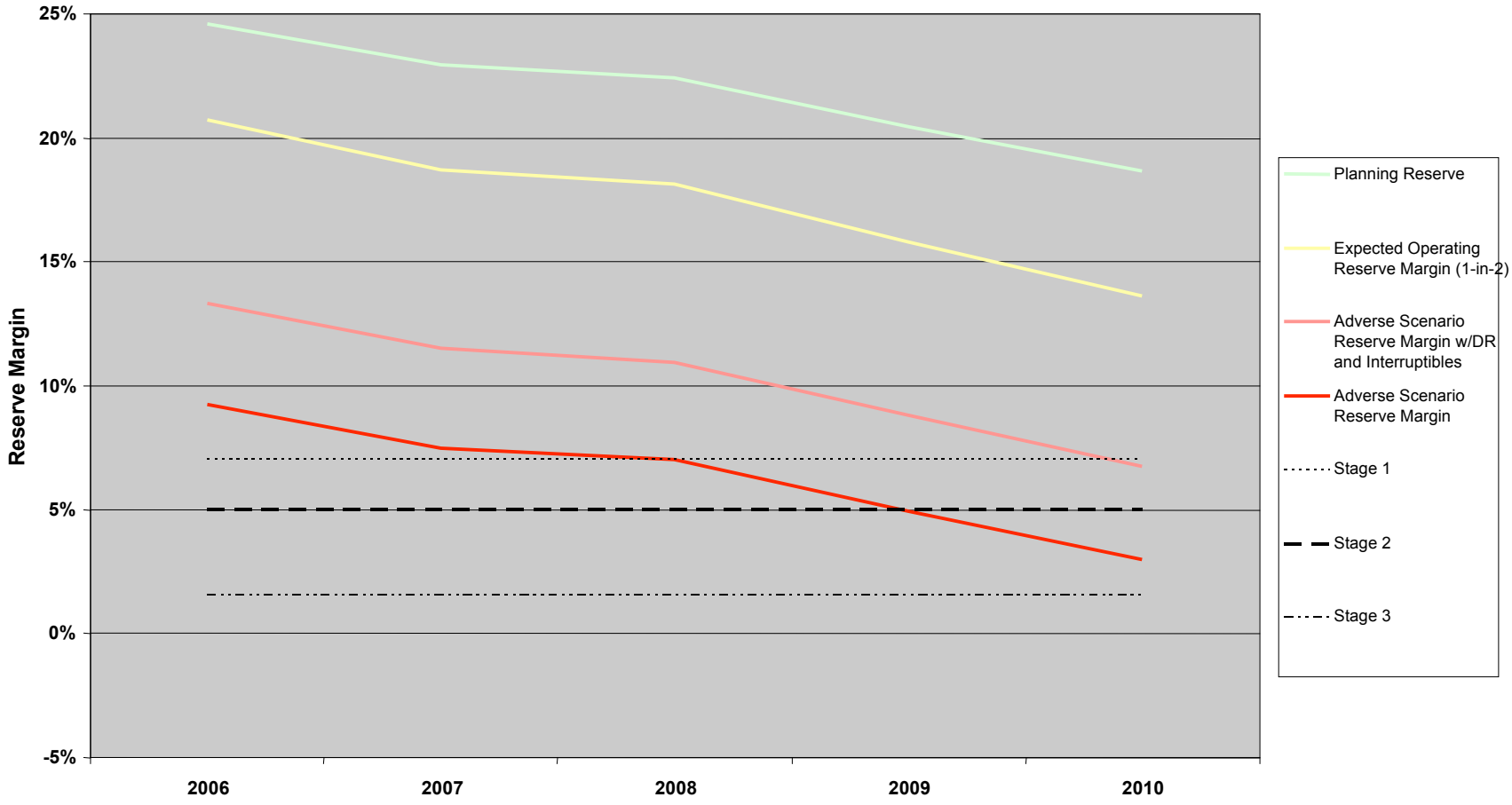
Preliminary 5 Year Outlook Statewide



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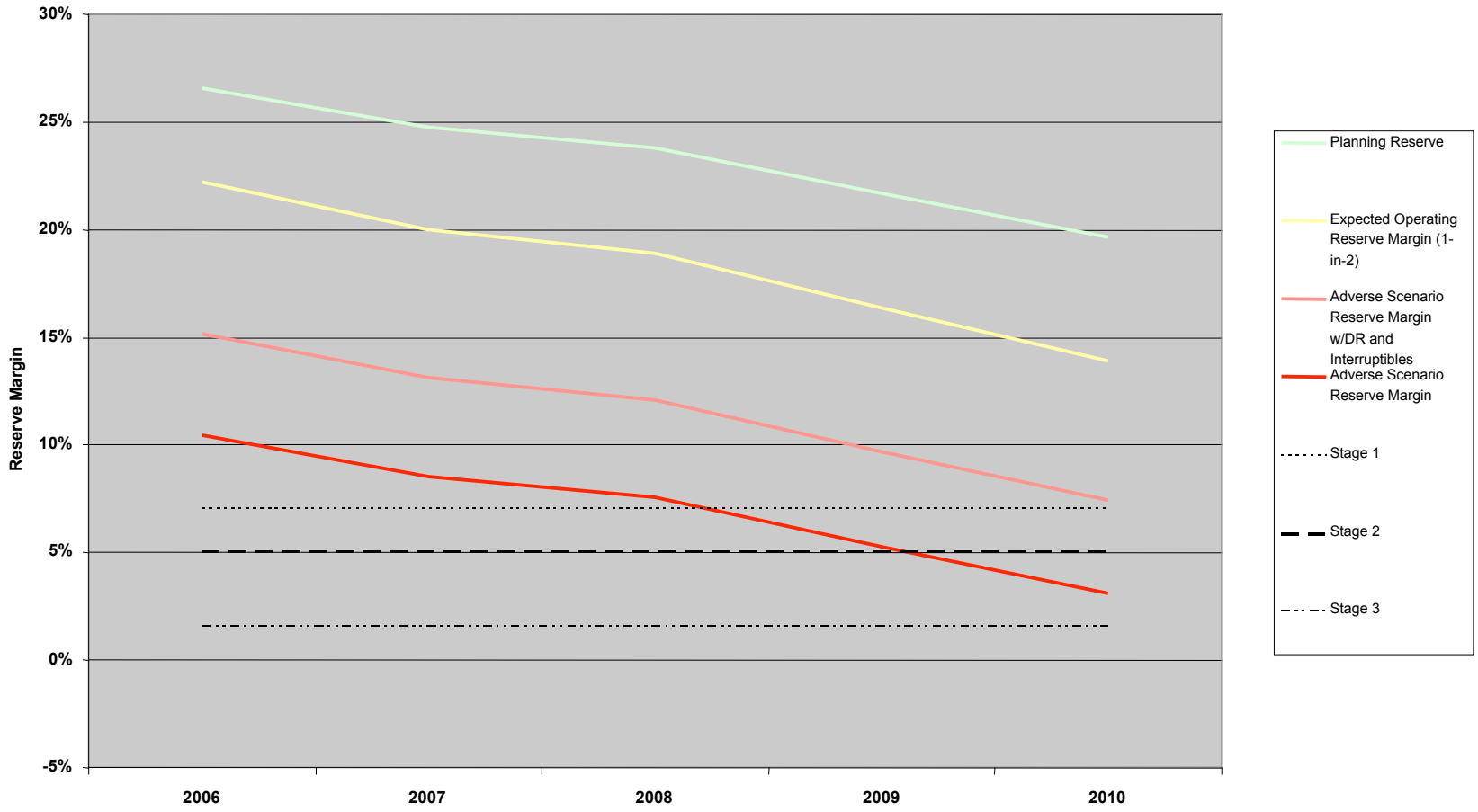
Preliminary 5 Year Outlook CA ISO control area



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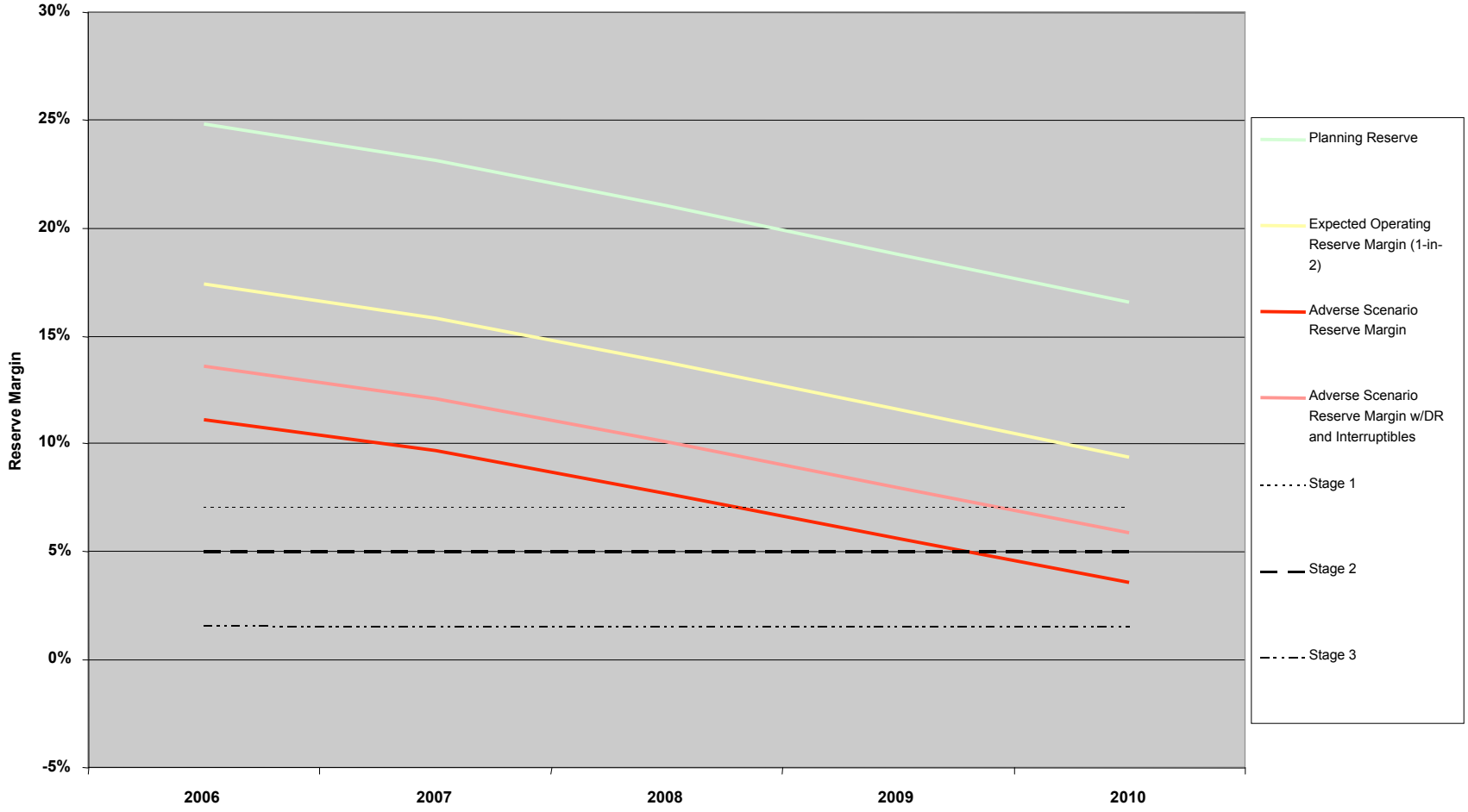
Preliminary 5 Year Outlook Northern Region (NP 26)



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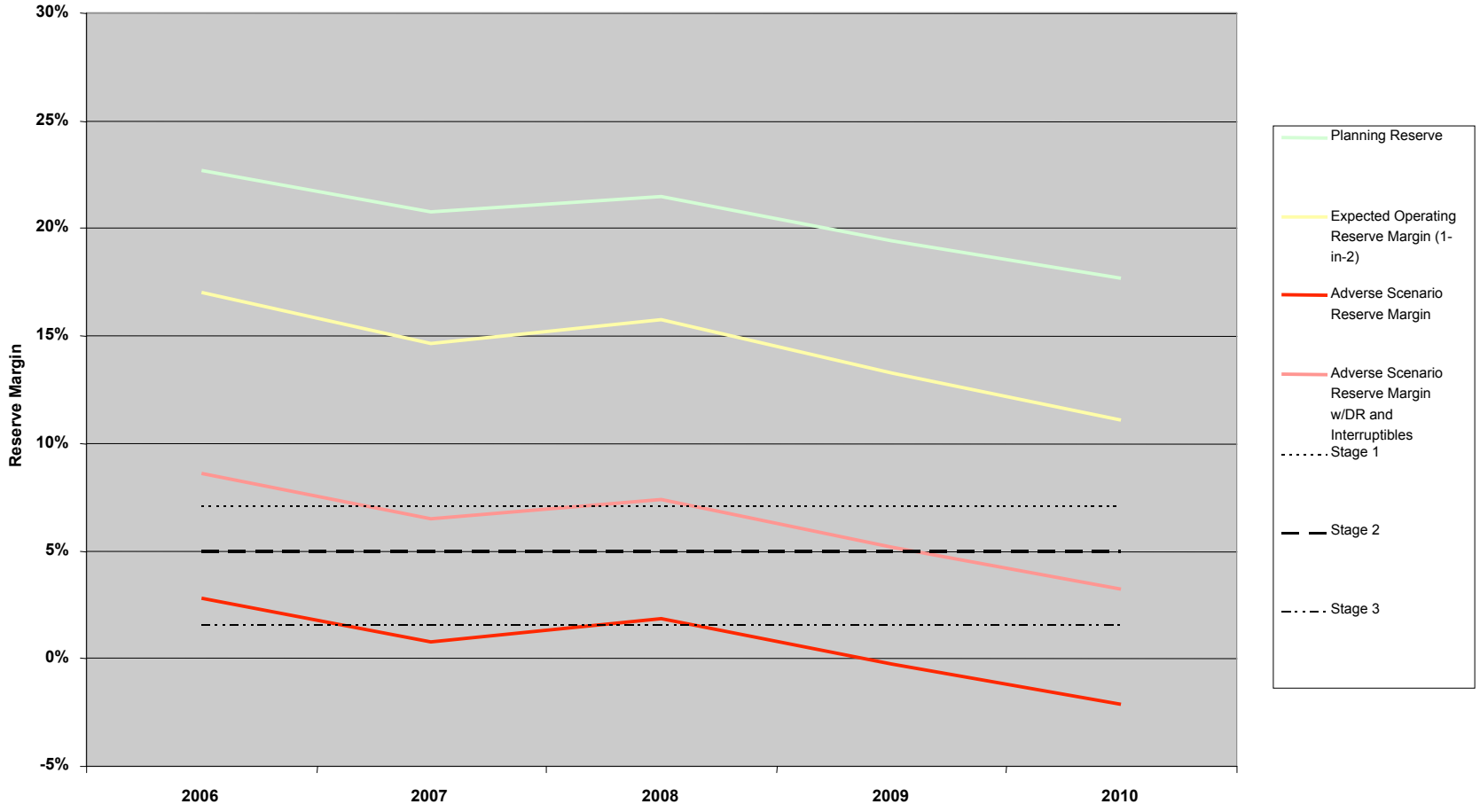
Preliminary 5 Year Outlook Southern Region (SP 26)



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Preliminary Conclusions
2007 and Beyond

- **Projected reserve margins appear to exceed minimum operating reserve criteria at the statewide and CA ISO control area level through 2010, with Demand Response and Interruptible resources needed under adverse conditions beginning in 2008.**

- **Projected reserve margins appear to exceed minimum operating reserve criteria in NP 26 until 2010, with Demand Response and Interruptibles needed under adverse conditions beginning in 2009.**

- **Without additional resources, DR and Interruptibles will be needed to avoid Stage 3 under adverse conditions in SP 26 beginning in 2007.**